IN THE CLAIMS:

- 1. (Original) A method for performing an input/output operation to a storage device
- 2 from a computer, the method comprising the steps of:
- selecting a first data path from a set of data paths between the computer and the
- 4 storage device;
- attempting the input/output operation using the selected first data path;
- selecting, in response to an error in the input/output operation using the first data
- path, a next data path from the set of data paths; and
- attempting the input/output operation using the selected next data path.
- 2. (Original) The method of claim 1 wherein the set of data paths is dynamically gener-
- ated in response to storage device events.
- 3. (Original) The method of claim 2 wherein the storage device event further comprises a
- 2 Fibre Channel loop initialization event.
- 4. (Original) The method of claim 1 wherein the first data path further comprises a last
- 2 used data path associated with the storage device.
- 5. (Original) The method of claim 1 wherein the storage device further comprises a disk
- 2 drive.
- 6. (Original) The method of claim 5 wherein the disk drive is operatively interconnected
- with the computer by a Fibre Channel Arbitrated Loop.
- 7. (Original) The method of claim 1 wherein the computer further comprises a file
- 2 server.

- 8. (Original) The method of claim 1 wherein the set of data paths are described by a re-
- 2 lated set of data structures.
- 9. (Original) The method of claim 1 wherein the data paths utilize a Fibre Channel con-
- 2 nection.
- 10. (Currently Amended) A method for maintaining a set of data paths accessible by a
- set of upper level services of a storage operating system of a computer, the method com-
- 3 prising the steps of:
- 4 creating a device instance associated with a storage device;
- creating a first path instance <u>distinct from the device</u> instance, where the first path
- 6 <u>instance is</u> associated with a first path to the storage device;
- 7 creating, in response to events identifying an addition of a path, an additional path
- instance associated with an additional path to the storage device, where the additional
- 9 path is distinct from the device instance; and
- deleting, in response to events identifying a removal of a path, a path instance associated with the removed path.
- 11. (Original) The method of claim 10 wherein the step of creating a device instance oc-
- 2 curs in response to receipt of an event identifying an addition of a storage device.
- 12. (Original) The method of claim 10 wherein the events identifying an addition of a
- 2 path is a Fibre Channel loop initialization event.
- 1 13. (Original) The method of claim 10 wherein the events identifying removal of a path is
- 2 a Fibre Channel loop initialization event.

- 14. (Original) The method of claim 10 wherein the step of creating an additional path in-
- stance further comprises the step of linking the additional path instance to a linked list of
- path instances associated with the storage device.
- 15. (Original) The method of claim 10 wherein the device instance and path instances are
- 2 accessible via an application program interface.
- 16. (Original) The method of claim 10 wherein the set of upper level services further
- 2 comprises a redundant array of inexpensive disks layer of the storage operating system.
- 17. (Original) A computer for use with a plurality of storage devices having one or more
- data paths associated with the storage devices, the computer comprising:
- means for detecting changes to the data paths associated with the storage devices;
- 4 means for maintaining a set of path instances associated with each of the plurality
- of storage devices, the data path instances accessible to a set of upper level services;
- 6 means for performing input/output operations to the plurality of storage devices
- 7 using a first data path;
- means for selecting alternate data paths, in response to an error occurring with the
- 9 first data path; and
- means for performing input/output operations to the plurality of storage devices
- using the selected alternate data paths.
- 1 18. (Original) The computer of claim 17 wherein the upper level services access the data
- 2 path instances via an application program interface.
- 19. (Original) A storage operating system executing on a computer, the storage operating
- 2 system comprising:
- a routing administration layer, the routing administration layer dynamically updat-
- 4 ing a set of device instances, each device instance associated with a storage device;

- wherein each device instance includes at least one path instance, each path in-
- stance identifying a path from the computer to the associated storage device; and
- a set of upper level services, the upper level services capable of accessing the de-
- 8 vice instances.
- 20. (Original) The storage operating system of claim 19 wherein the routing administra-
- tion layer further comprises an application program interface, the application program
- interface providing the upper level services access to the set of device instances.
- 21. (Original) The storage operating system of claim 19 wherein the upper level services
- 2 further comprises a redundant array of independent disks layer of the storage operating
- 3 system.
- 22. (Original) A computer-readable medium, including program instructions executing
- on a computer, for performing an input/output operation to a storage device having one or
- more data paths to the computer, the program instructions including steps for:
- selecting a first data path from a linked list of data paths to the storage device;
- attempting the input/output operation using the selected first data path;
- selecting, in response to an error in the input/output operation using the first data
- path, a next data path from the linked list of data paths; and
- attempting the input/output operation using the selected next data path.
- 23. (Original) A computer-readable medium, including program instructions executing
- on a computer, for maintaining a set of data paths accessible by a set of upper level ser-
- vices of a storage operating system, the program instructions including steps for:
- 4 creating a device instance associated with a storage device;
- creating a first path instance associated with a first path to the storage device;
- 6 creating, in response to events identifying an addition of a path, an additional path
- 7 instance associated with additional path to the storage device; and

- deleting, in response to events identifying a removal of a path, a path instance associated
- 9 with the removed path.
- 1 24. (Cancelled)
- 25. (Previously Presented) The method of claim 1 further comprising:
- dynamically generating the set of data paths in response to a storage device event.
- 26. (Previously Presented) The method of claim 1 further comprising:
- dynamically generating the set of data paths in response to a Fibre Channel loop
- 3 initialization event.
- 27. (Previously Presented) The method of claim 1 further comprising:
- selecting, as the first data path, a last used data path associated with the storage
- 3 device.
- 1 28. (Previously Presented) The method of claim 1 further comprising:
- 2 performing the input/output operation to a disk drive as the storage device.
- 29. (Previously Presented) The method of claim 28 further comprising:
- interconnecting the computer with the disk drive by a Fibre Channel Loop.
- 30. (Previously Presented) The method of claim 1 further comprising:
- 2 performing the input/output operation from a file server as the computer.
- 1 31. (Previously Presented) The method of claim 1 further comprising:
- describing the set of data paths by a set of data structures.

- 1 32. (Previously Presented) The method of claim 1 further comprising:
- 2 utilizing a Fibre Channel connection as a data path of the set of data paths.
- 33. (Previously Presented) A computer for performing an input/output operation to a
- storage device having one or more data paths to the computer, the computer comprising:
- means for selecting a first data path from a set of data paths to the storage device;
- 4 means for attempting the input/output operation using the selected first data path;
- means for selecting, in response to an error in the input/output operation using the
- 6 first data path, a next data path from the set of data paths; and
- means for attempting the input/output operation using the selected next data path.
- 34. (Previously Presented) The computer of claim 33 further comprising:
- means for dynamically generating the set of data paths in response to a storage
- 3 device event.
- 35. (Previously Presented) The computer of claim 33 further comprising:
- means for dynamically generating the set of data paths in response to a Fibre
- 3 Channel loop initialization event.
- 1 36. (Previously Presented) The computer of claim 33 further comprising:
- means for selecting, as the first data path, a last used data path associated with the
- 3 storage device.
- 37. (Previously Presented) The computer of claim 33 further comprising:
- means for performing the input/output operation to a disk drive as the storage de-
- 3 vice.
- 1 38. (Previously Presented) The computer of claim 37 further comprising:

means for interconnecting the computer with the disk drive by a Fibre Channel 2 Loop. 3 39. (Previously Presented) The computer of claim 33 further comprising: 1 means for performing the input/output operation from a file server as the com-2 3 puter. 40. (Previously Presented) The computer of claim 33 further comprising: 1 means for describing the set of data paths by a set of data structures. 2 41. (Previously Presented) The computer of claim 33 further comprising: 1 2 means for utilizing a Fibre Channel connection as a data path of the set of data paths. 3 42. (Previously Presented) A system for performing an input/output operation between a 1 computer and a storage device, comprising: 2 a plurality of data paths between the computer and the storage device; 3 a first data path selected from the plurality of data paths; a first software code in a routing administrator, to attempt the input/output opera-5 tion using the selected first data path; 6 a second software code to select, in response to an error in the input/output opera-7 8 tion using the first data path, a next data path from the plurality of data paths; and a third software code to attempt the input/output operation using the selected next 9 data path. 10 1 43. (Previously Presented) The system of claim 42 further comprising:

a plurality of data paths dynamically generated in response to a storage device

2

3

event.

- 1 44. (Previously Presented) The system of claim 42 further comprising:
- a plurality of data paths dynamically generated in response to a Fibre Channel
- 3 loop initialization event.
- 1 45. (Previously Presented) The system of claim 42 further comprising:
- the first data path is a last used data path associated with the storage device.
- 46. (Previously Presented) The system of claim 42 further comprising:
- a disk drive as the storage device.
- 47. (Previously Presented) The system of claim 42 further comprising:
- a Fibre Channel Loop connecting the computer to a disk drive as the storage de-
- 3 vice.
- 48. (Previously Presented) The system of claim 42 further comprising:
- a file server as the computer.
- 49. (Previously Presented) The system of claim 42 further comprising:
- a data structure to describe the plurality of data paths.
- 50. (Previously Presented) The system of claim 42 further comprising:
- a Fibre Channel connection as a path of the plurality of data paths.